

## 享元模式

摘自 `javascript设计模式与开发实践`

享元模式是一种用于性能优化的模式, , 如果系统中因为创建了大量类似的对象而导致内存占用过高, 享元模式就是最好的选择

享元模式要求将对象的属性划分为内部状态与外部状态, 享元模式的目的就是尽量减少共享对象的数量

文件上传的例子

没有使用享元模式

```
var id = 0;
window.startUpload = function( uploadType, files ){ // uploadType 区分是控件还是
flash
    for ( var i = 0, file; file = files[ i++ ]; ){
        var uploadObj = new Upload( uploadType, file.fileName, file.fileSize );
        uploadObj.init( id++ ); // 给upload 对象设置一个唯一的id
    }
};

var Upload = function( uploadType, fileName, fileSize ){
    this.uploadType = uploadType;
    this.fileName = fileName;
    this.fileSize = fileSize;
    this.dom= null;
};

Upload.prototype.init = function( id ){
    var that = this;
    this.id = id;
    this.dom = document.createElement( 'div' );
    this.dom.innerHTML =
        '<span>文件名称:' + this.fileName + ', 文件大小: ' + this.fileSize + '</span>' +
        '<button class="delFile">删除</button>';
    this.dom.querySelector( '.delFile' ).onclick = function(){
        that.delFile();
    }
    document.body.appendChild( this.dom );
};

Upload.prototype.delFile = function(){
    if ( this.fileSize < 3000 ){
        return this.dom.parentNode.removeChild( this.dom );
    }
    if ( window.confirm( '确定要删除该文件吗? ' + this.fileName ) ){
        return this.dom.parentNode.removeChild( this.dom );
    }
};

startUpload( 'plugin', [
```

```

        fileName: '1.txt',
        fileSize: 1000
    },
    {
        fileName: '2.html',
        fileSize: 3000
    },
    {
        fileName: '3.txt',
        fileSize: 5000
    }
]);
startUpload( 'flash', [
    {
        fileName: '4.txt',
        fileSize: 1000
    },
    {
        fileName: '5.html',
        fileSize: 3000
    },
    {
        fileName: '6.txt',
        fileSize: 5000
    }
]);

```

使用享元模式重构代码

```

var Upload = function( uploadType ){
    this.uploadType = uploadType;
};

Upload.prototype.delFile = function( id ){
    uploadManager.setExternalState( id, this ); // (1)
    if ( this.fileSize < 3000 ){
        return this.dom.parentNode.removeChild( this.dom );
    }
    if ( window.confirm( '确定要删除该文件吗?' + this.fileName ) ){
        return this.dom.parentNode.removeChild( this.dom );
    }
}

var UploadFactory = (function(){
    var createdFlyweightObjs = {};
    return {
        create: function( uploadType ){
            if ( createdFlyweightObjs [ uploadType ] ){
                return createdFlyweightObjs [ uploadType ];
            }
            return createdFlyweightObjs [ uploadType ] = new Upload( uploadType );
        }
    }
})();

```

```

var uploadManager = (function(){
    var uploadDatabase = {};
    return {
        add: function( id, uploadType, fileName, fileSize ){
            var flyweightObj = uploadFactory.create( uploadType );
            var dom = document.createElement( 'div' );
            dom.innerHTML =
                '<span>文件名称:' + fileName + ', 文件大小: ' + fileSize + '</span>' +
                '<button class="delFile">删除</button>';
            dom.querySelector( '.delFile' ).onclick = function(){
                flyweightObj.delFile( id );
            }

            document.body.appendChild( dom );
            uploadDatabase[ id ] = {
                fileName: fileName,
                fileSize: fileSize,
                dom: dom
            };
            return flyweightObj ;
        },
        setExternalState: function( id, flyweightObj ){
            var uploadData = uploadDatabase[ id ];
            for ( var i in uploadData ){
                flyweightObj[ i ] = uploadData[ i ];
            }
        }
    }
})();

var id = 0;
window.startUpload = function( uploadType, files ){
    for ( var i = 0, file; file = files[ i++ ]; ){
        var uploadObj = uploadManager.add( ++id, uploadType, file.fileName,
        file.fileSize );
    }
};

startUpload( 'plugin', [
{
    fileName: '1.txt',
    fileSize: 1000
},
{
    fileName: '2.html',
    fileSize: 3000
},
{
    fileName: '3.txt',
    fileSize: 5000
}
]);
startUpload( 'flash', [
{
    fileName: '4.txt',
    fileSize: 1000
},
{

```

```
    fileName: '5.html',  
    fileSize: 3000  
  },  
  {  
    fileName: '6.txt',  
    fileSize: 5000  
  }  
]);
```